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## BEHAVIOR OF ROMANIAN BREAD CONSUMERS

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### ABSTRACT

The food segment is diversified and renewed due to the needs, desires, and increased demands of consumers. In the evolution of society, a defining role is the issue of nutrition which is quite complex, wide-ranging and contradictory. The purpose of this study is to identify the behavior of the Romanian bread consumer. It was used as a research method for conducting the case study opinion survey, the research tool being the questionnaire, in online format. In order to make the research as rigorous as possible, it was calculated by means of  $\chi^2$  whether certain variables such as sex, environment, income and age influence consumption.

## Introduction

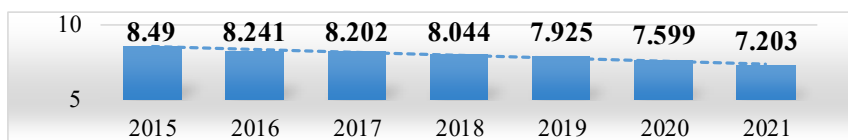
Bread should not be absent from our daily diet, due to the content of nutrients, thus covering a fairly large part of the caloric and carbohydrate portion of the day. All types of bread, whether made up of rye flour or wheat flour, can be in line with the notion of a healthy preparation, which is intended to be targeted at consumers in different categories. According to the nutrition specialists, "we need to consume 50% of bread and bakery products from the total of cereal products necessary for the body" (Popa C.N., 2021).

In the agricultural year 2021, the wheat harvest was 11.3 million tons, a figure remarkable for Romania. With this in mind, the question is on everyone's lips: "how

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has it come to the situation that after a year with record wheat production, bread is more expensive by 30%?" (Briziday, 2021). The year 2022 brought with it significant price increases, so the sliced white bread reached over 10 lei/kg, compared to the same period last year, prices increased by a range of 3% to 30%, depending on the producer, the type of bread or the grammage (Nițu, F., 2022). As a result, a number of producers have initiated a diversification of their products, thus responding to the needs of consumers. The consumption of the loaf is decreasing in recent years, which has led to an increase in the consumption of specialty foods (black bread, bread with bran, bread without salt, multicereal bread, graham bread, bread with seeds, bread with milk, bread with basil and tomatoes). As a consequence, the refinement of consumption has occurred, leading to increased demand for products with a surplus of fiber, but also for bread types, which do not contain antioxidants, food additives, preservatives, thus food without E-caps. Regarding bread with seeds and black bread, they have an increased amount of fiber and vitamins, so their nutritional value is much higher than that of white bread (Florea N.V., Duica M.C., Ionescu C.A., Duică A., Ibinceanu M.C.O., Stănescu S. G., 2021). As for the offers in hypermarkets, they are adapted to the type of customer in each store, but not limited only to traditional bread, in their offers appeared a category of special products such as: graham, kornspitz, onion bread, olives, corn or potatoes. So, we are currently witnessing the strong impact of the increasing demands of consumers on the assortment structure and quality level of products (Catoiu I., Oancea O., Pandelica A., 2011). An example of a premium product is the bread "10 seeds" produced by "Oltina Impex Prod Com", which was awarded as the best product in the bakery products segment in Romania. The awards ceremony of the contest called "The Chosen Taste 2021" was held online on 27.11.2021, the competition being organized annually by Roalimint (Popa C.N., 2021). Looking at the average monthly consumption in the last years, i.e. 2015-2021, it can be seen that Romanians gradually consume per year less bread and bakery products (Figure 1).

**Figure 1.** Average monthly consumption of bread and bakery products expressed in kg/inhabitant



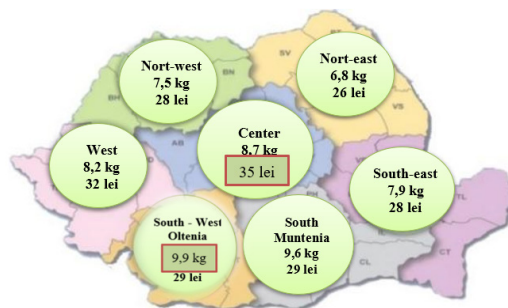
Source: Adapted from <https://insse.ro/cms/>

In 2015, the average monthly consumption of Romanians was 8.49 kg/person, and every year it has continuously decreased, reaching 7.203 kg/person in 2021. From 2015 to 2021 consumption decreased by 1,287 kg/person (National Institute of Statistics, 2021).

Although the consumption of bread was reduced at national level and continued to show a downward trend in 2018, as evidenced by data provided by the National Institute of Statistics, significant differences in consumption behavior are noted by region (Figure

2), occupation (Figure 3), environment of provenance (Figure 8), but also by sex and age (Table 1). According to the 2019 market study published on the website of the „White Art” (which is a source of information for bakers), the following information was obtained (Florescu C., 2019 9).

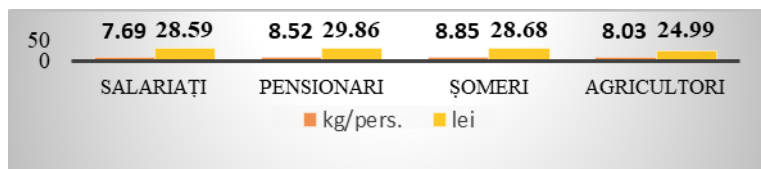
**Figure 2.** Average monthly consumption of bread and bakery products and value allocated, by region, in 2018



Source: <https://artaalba.ro/piata-painii-intre-traditie-si-inovatie/>

The Oltenia region is the area with the highest consumption of bread, namely 9.9 kg/inhabitant, and the price of bread consumed in this region is 29 lei per month/inhabitant. In the North East of the country, it can be stated that there is also the lowest bread consumption, that is 6.8 kg per inhabitant, but also the lowest price allocated to bread, 26 lei per inhabitant/month. In the center of the country it can be observed that although the consumption of bread is lower, 8.7 kg /inhabitant, they pay the highest price in the whole country to consume this food, about 35 lei/inhabitant/month.

**Figure 3.** Average monthly bread consumption and value allocated by consumer occupation

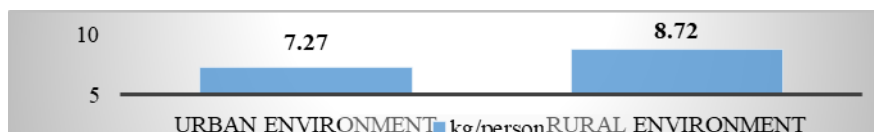


Source: <https://artaalba.ro/piata-painii-intre-traditie-si-inovatie/>

Looking at Figure 3 it can be seen that among unemployed people is the highest consumption of bread, 8.85 kg/person, and the allocated expenses for these products is 28.68 lei person/month. they consume less bread, 7.69 kg/person, but the price allocated on this food is close, 28.59 lei person/month.

Farmers consume the smallest amount of bread, 8.03kg person/month, but also allocate the smallest amount of money on it.

The geographical structure analysis (Figure 4) also shows that urban people consume less (7.27 kg/person) bread than rural people who consume 8.72 kg/person.

**Figure 4.** Average monthly consumption by background

Source: <https://artaalba.ro/piata-painii-intre-traditie-si-inovatie/>

According to the information published by the National Institute of Statistics (INS), in Romania, in 2021 the amount of bread consumed differs depending on the age segment and the sex of the consumers as follows (National Institute of Statistics):

**Table 1.** Bread consumption in Romania by age group and sex

Age	Sex	
	Female	Male
	Average daily consumption	
16-24 years	72 g	107 g
25-34 years	84 g	118 g
35-44 years	95 g	138 g
45-54 years	105 g	148 g
55-64 years	104 g	144 g
>65 years	96 g	130 g

Source: The National Institute of Statistics

According to the data presented, it is noted that female people consume a lower amount of bread than men in all specified age categories. The largest differences in the amount consumed between male and female sex are in the age groups 35-44 and 45-54 and 43 grams, respectively. As a result of the analysis of the data, it can also be found that with advancing age, the consumption of bread increases in the case of women aged between 16 and 24 years consumes 74 grams, a few years later at the interval of 45-54 years they get to consume on average 105 grams daily of bread (table 1).

According to a study carried out by iSense Solutions in 2022, white bread is the most consumed by 43% of Romanians in the city, a large proportion of them choosing this type of bread daily, but also several times a day. In the pandemic, the Romanians remained faithful to this type of bread, but opted for sliced to the detriment of the simple one, being more protected (Popa S., 2022). Romanians occupy the third place in Europe in terms of bread consumption, with 90 kg inhabitant/year, after the European countries of Albania and Bulgaria. Because for Romanians, bread is a staple food, annual consumption per inhabitant exceeds by about 40% the average in European countries.

Faced with a significant increase in the import of bakery products and also the increase in the market share of what were once considered niche products, the Romanian producers want to relaunch the traditional bread as the “basic product” in the consumption of Romanians.

Currently, bread is brought to our market from Germany, Austria, Bulgaria and even Hungary. The price of bread in our country is currently close to the price level in the

Czech Republic, Poland, Hungary, but at the same time it is 40% lower compared to the European average. The lowest bread prices are in Bulgaria, where they are 60% lower than the EU average, and the highest are in Norway and Sweden 40-65% higher than the European average (Matei R.M., Matetovici E., Mihai R.M., Murariu A.M., 2022).

The bread market in Romania is extremely strong, with a wide variety of manufacturers and suppliers offering consumers a wide variety of bakery products. Suppliers have begun to create their own bread brands, and consumers enjoy lower prices. Local and regional producers occupy a significant position, but there are also international firms on the bread market in Romania. Bread manufacturers include both large factories and small bakeries producing fresh bread.

### **Materials and methods**

We used as a research method for conducting the case study the opinion survey, the research tool being the questionnaire, in online format. This method seemed to me to be the most suitable for reaching all types of people in several regions of the country.

The purpose of this study is to obtain information necessary to identify the behavior of the Romanian bread consumer. As part of the research, we aimed to identify the reasons that influence him/her to consume/not consume this food, if he/she intends to change his/her tabs, as well as the impressions formed about the product. The objectives of the research are:

- Identifying the most consumed type of bread;
- Reasons for the respondent consuming/not eating bread;
- Determining the percentage of respondents who intend to change their consumption habits as a result of the price increases;
- Formed opinion about bread, how satisfied they are with the quality-price ratio.

The research hypotheses are :

- More than 20% of Romanian consumers would change their eating habits if the price of bread increased considerably;
- More than 50% of Romanian consumers eat white bread;
- Less than 10% of Romanian consumers are dissatisfied with the quality of the bread on the market;
- More than 30% of Romanian consumers choose to eat bread because it gives them the feeling of satiety.
- Most consumers of bread are male;

The questionnaire on the behavior and preferences of bread consumers was distributed online for completion in the period 26.07.2022-27.02.2023 and is composed of 2 sets of questions. After respondents answered the first question, where they were asked

whether or not to eat bread, they were redirected to the answer, to a set of questions for people who said they were eating bread, it contained specific questions, and those who answered that they did not eat bread were redirected to another set of questions. The questionnaire contains 21 closed questions, 1 open question and 6 mixed questions. The questionnaire was carried out online using the Google Forms platform and was carried out on a sample of 120 people. The results were analyzed with the help of Google Forms, and personally processed into Word diagrams. After analyzing the information we found that all questionnaires are completed in full, without any questionnaire being rejected, so the final sample is 120 respondents, and the response rate is 100%.

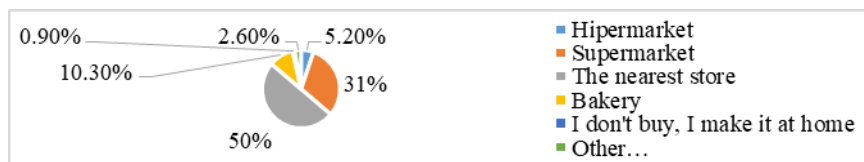
## Results

Of the 120 respondents, 116 people and 96.7% are bread consumers, only 4 people said they do not eat this food, the percentage being 3.3%.

The reasons for which bread consumers choose to consume this food are because people feel that they do not get enough without eating and bread at the table, respectively 40.5%, 36.2% of respondents said that they like the taste, while 22.4% of respondents consume only from the usual food. One person opted for the „Other” option, adding in his own response that certain foods are consumed with bread. 69% of respondents viewed bread as a healthy food, while 31% denied it.

Ask where they buy bread most often? Most respondents buy the bread from the nearest shop, with a share of 50% for this category (Figure 5).

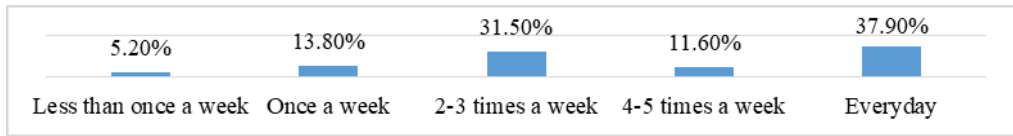
**Figure 5.** Place of purchase of bread



*Source:* drafted by the authors

The next point in getting bread is the supermarket, which is 31% of people said they were buying bread in the supermarket. Bakeries are chosen by 10.3% of people to buy bread, only one person does it personally in the house, and 2.6% of people checked for „Other”, and their response was that depending on where they are they decide where to buy the bread.

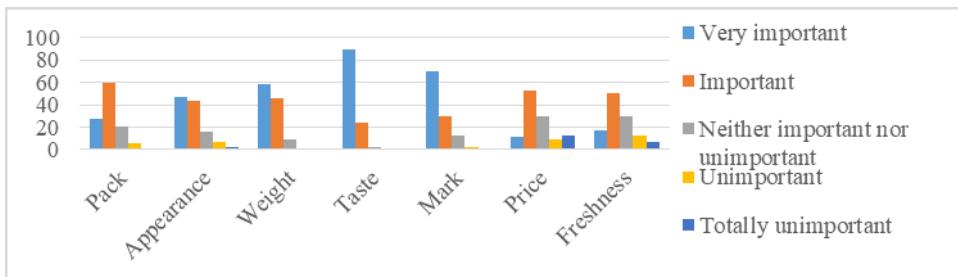
As regards the frequency of purchase, it is noted that most people purchase bread on a daily basis, i.e. 37.9% of those surveyed (Figure 6).

**Figure 6.** Frequency of purchasing bread

*Source:* drafted by the authors

It also stands out at a high rate of 31.5% among those who buy bread 4-5 times a week, less often than once a week buy only 5.2% of those questioned.

Respondents specified the importance of the following criteria: packaging, appearance, weight, taste, brand, price and freshness when buying bread (Figure 7).

**Figure 7.** Importance of criteria in choosing bread

*Source:* drafted by the authors

From the very beginning, there are differences of opinion, so we calculated the average score for each attribute using the method of semantic differential scaling.

$$P_{Pack} = \frac{28 \times 5 + 60 \times 4 + 21 \times 3 + 6 \times 2 + 1 \times 1}{116} = 3,9$$

$$P_{Appearance} = \frac{47 \times 5 + 44 \times 4 + 16 \times 3 + 7 \times 2 + 2 \times 1}{116} = 4,1$$

$$P_{Weight} = \frac{59 \times 5 + 46 \times 4 + 9 \times 3 + 1 \times 2 + 1 \times 1}{116} = 4,4$$

$$P_{Taste} = \frac{89 \times 5 + 24 \times 4 + 2 \times 3 + 1 \times 2 + 0 \times 1}{116} = 4,7$$

$$P_{Mark} = \frac{70 \times 5 + 30 \times 4 + 13 \times 3 + 2 \times 2 + 1 \times 1}{116} = 4,4$$

$$P_{Price} = \frac{11 \times 5 + 53 \times 4 + 30 \times 3 + 9 \times 2 + 13 \times 1}{116} = 3,3$$

$$P_{Freshness} = \frac{17 \times 5 + 50 \times 4 + 30 \times 3 + 12 \times 2 + 7 \times 1}{116} = 3,5$$



$$P_{\text{aggregate}} = \frac{P_{\text{Pack}} + P_{\text{Appearance}} + P_{\text{Weight}} + P_{\text{Taste}} + P_{\text{Mark}} + P_{\text{Price}} + P_{\text{Freshness}}}{7}$$

$$= \frac{3,9 + 4,1 + 4,4 + 4,7 + 4,4 + 3,3 + 3,5}{7} = 4,04$$

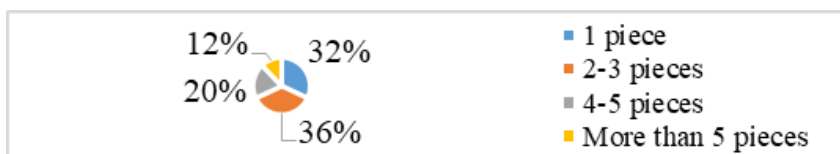
The packaging is appreciated as relatively important, the average 3,9 being very close to 4 which is important, in terms of appearance it is also an appreciation as important, with an average of 4,1. The respondents' view about grammage is that it is between „important” and „very important” with an average of 4.4, and the taste is in a similar situation only that it is closer to „very important” with an average of 4.7. On the brand, an average of 4.4 was obtained, and surprisingly, the price has the lowest average of 3.3, proof that the price is not in the first criteria when respondents buy the bread. We found that freshness has an average of 3.5 located between „not important, not important” and „important”.

The overall average score is 4.04, that is, between „Not important, not important” and „Important”.

Appearance, weight, taste and brand have higher average scores than overall average, while packaging, price and freshness have lower average scores than overall average. Overall, respondents take the most into account the taste of the bread and the price of the bread.

Respondents prefer to buy a smaller amount of bread, 36.6% of them buy 2-3 pieces at a shopping session, probably to always buy fresh bread, but there are people who buy 5 pieces at a time, that is 12.1% of the people surveyed have this habit (figure 8).

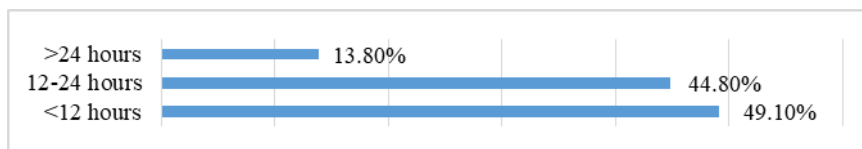
**Figure 8.** Quantity of bread purchased



*Source:* drafted by the authors

Most of the people surveyed claimed to enjoy the bread within 12 hours of the time of purchase (Figure 9).

**Figure 9.** Time of consumption



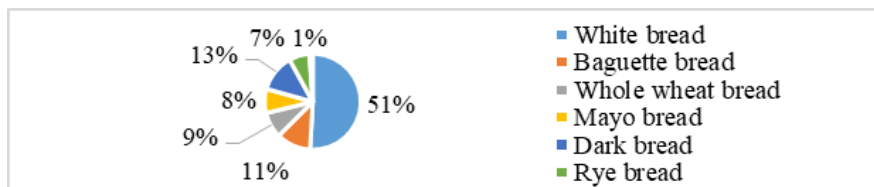
*Source:* drafted by the authors

The type of bread consumed by more than half of the people surveyed, namely 50.9%, is white bread. The next type of bread consumed is black bread, 12.7% of respondents,



but a considerable difference from white bread. Rye bread is not consumed by many people, only 6.9% of respondents. There were people who ticked „Other” and added that the seed bread is on their table (Figure 10). As assortments they say they prefer sliced bread, and unsliced bread is chosen by 37.1% of people.

**Figure 10.** Type of bread consumed, 44% of respondents



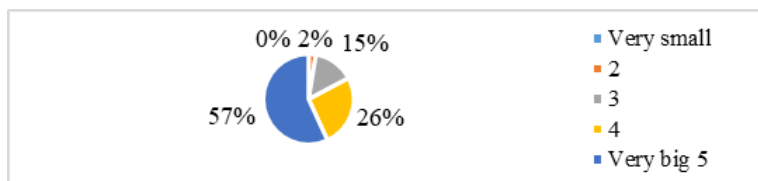
*Source:* drafted by the authors

As a favorite bread brand, „VelPitar” is obviously the most purchased bread brand, with 54.3% answers, followed by „Three Bakers” with 25%, but the difference between them is significant. Last place is the Galmopan brand with 0.9%. People were present who did not find themselves in the exhibits and used the „Other” version to express their opinion, and revealed that they prefer bread from the bakeries of Kaufland/Lidl, the simple lunch from the store or the bread from the bakery on the way home. We found that people questioned are not hindered by the price to choose black/graham bread, 49.6% of people mentioned that if the price of black/graham bread were lower than that of white bread, they would still not consume such bread.

Opposing opinions have emerged, with 34.8% saying they would choose such bread if the price were lower.

In relation to the price of bread, we found that 56.9% of respondents consider the current prices of bread very high compared to previous years, 25.9% of people chose the figure 4 which is close to a very high price, which means that they are heading towards the variant that the price is high, only 14.7 of people ticked the figure 1 and 2 which shows that the price is low, somewhere at 2.6% of people (figure 11).

**Figure 11.** The price of bread

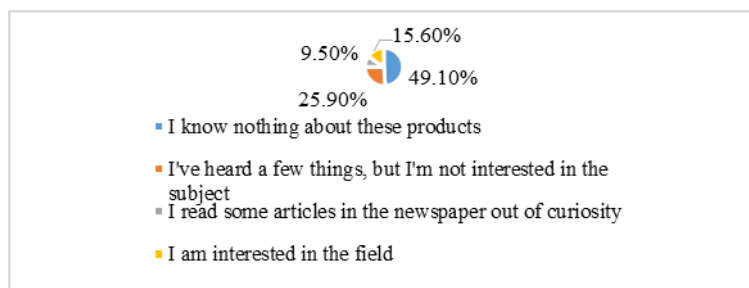


*Source:* drafted by the authors

Also, it is noted that respondents do not look for even the lowest price of bread, those who buy bread under 2 lei are 11.2%. Most people would like to buy bread between 2 and 4 lei, that is 45.7% people. The lowest percentage of respondents, 6.9%, would be willing to pay for a bread of 500 grams over 7 lei.

49.1% of respondents do not even know about the existence of organic bread, while 15.6% of respondents are interested in this area (Figure 12).

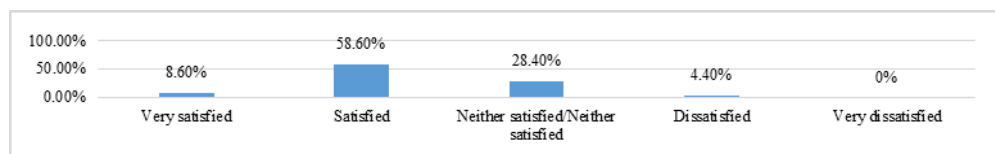
**Figure 12.** Knowledge of organic bread



*Source:* drafted by the authors

The average score of 3.71, shows that the respondents' satisfaction with the quality of the bread on the market in our country is between „Neither satisfied nor dissatisfied” and „Satisfied”. But the score of 3.71 is not a big one, it could be even better. In other words, there is still room for improvement in the Romanian bread market for people to be fully satisfied. It is worth noting that no one has confessed that he is totally dissatisfied with the quality of the bread on the current market (Figure 13).

**Figure 13.** Thanks to respondents for the quality of the bread



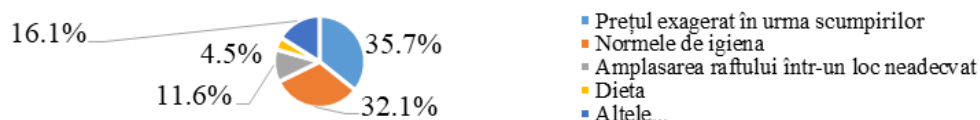
*Source:* drafted by the authors

$$P_{medium} = 10 \times 5 + 68 \times 4 + 33 \times 3 + 5 \times 2 + 0 \times 1 = 3,71$$

35.7% of respondents would give up eating bread if the price of the bread became too high. Hygiene standards, too, would be a reason for dropping 32.1% of respondents from bread consumption (Figure 14).

16.1% of the respondents responded with other variants than those mentioned, including: health, diet, taste and unpleasant appearance, diabetes.

**Figure 14.** Structure of the sample reason for refusing to eat bread



*Source:* drafted by the authors

Among the reasons why individuals do not eat bread were listed by 75% of respondents to the diet and believe that this food can bring them extra pounds. There are also people who simply do not like the taste of bread, namely 25% people. Individuals could start eating bread if they stopped following a diet, entourage would influence them to consume, but also people who would not start consuming this food regardless of its influence factor and intensity.

**Table 2.** Profile of respondents bread consumers

Revenue	Percentage	Occupation	Percentage	Civil status	Percentage
0-1000 lei	25,2	Pupil	6,1	Unmarried	49,6
1001-2000 lei	19,1	Student	28,9	Married	49,6
2001-3000 lei	22,6	Employee	57	Divorced	0,8
3001-4000 lei	14,7	Household	7,9	Widower	0
Over 4000 lei	18,2	Retired	0		

*Source:* drafted by the authors

It is noted that female people eat 69.8% of bread, while only 28.4% of respondents consuming bread were male. 1.7% of respondents felt the need not to answer this question. As regards the age of respondents, it is clear that people between 21 and 30 years of age consume this food the most, with a percentage of 50%. The fewest consumers of bread are those over the age of 60, at a rate of 0.9%. The results on revenues were surprising, most bread consumers having low incomes, ranging between 0 and 1000 lei, respectively 25.2%. The lowest percentage is held by people with incomes between 3001-4000 lei, namely 14.7% of consumer respondents are within this range. Bread consumers can also be said to be employed persons and with a diversified civil status, both unmarried and married persons are bread consumers (Table 2). The last 2 questions of the questionnaire referred to the environment and region where the respondents live and the results were structured in the following table (Table 3).

**Table 3.** Background and respondent region

Environment	Procentage	Region	Procentage
Urban	46,2	North-East	7,6
Rural	53,8	South-East	9,3
		South-Muntenia	65,3
		South-West Oltenia	4,2
		West	6,8
		Nord-West	0
		Centet	1,7
		Bucharest-Ilfov	5,1

*Source:* drafted by the author

It is noted that there is no large difference between the consumer environment, but there were more respondents from rural areas who stated the consumption of bread and more specifically 53.8%. Most consumers are from South-Muntenia, with a significant difference from the other regions of the country, namely 65.3%, the next highest percentage being the South-East of the country with 9.3% respondents from this area.

In order to make the research as rigorous as possible, we calculated with the help of  $\chi^2$  whether sex, environment of provenance, income and age influence consumption. Since 2 people replied with „I prefer not to say” to the question of sex we will have a sample of 118 people on this hypothesis (table 4).

Null hypothesis 1: Sex does not influence the consumption of bread by consumers.

**Table 4.** Distribution by sex

Category \ Sex	Male	Femate	Total
Consume	33 (31,9)	81 (82,1)	114
It does not consume	0 (1,1)	4 (2,9)	4
Total	33	85	118

*Source:* drafted by the authors

To apply the test formula,  
calculate the expected values:

$$A_{11} = \frac{114 \times 33}{118} = 31,9 \quad A_{21} = \frac{4 \times 33}{118} = 1,1 \quad A_{22} = \frac{4 \times 85}{118} = 2,9$$

$$A_{12} = \frac{114 \times 85}{118} = 82,1$$

Expected values are passed in the table next to the real ones.

$\chi^2_{\text{calc}} = \sum_{i=1}^r \sum_{j=1}^k \frac{(O_{ij} - A_{ij})^2}{A_{ij}} = \sum_{i=1}^r \sum_{j=1}^k \frac{(O_{ij} - A_{ij})^2}{A_{ij}}$ , where O-values obtained, A-values expected,

$$\chi^2_{\text{Calc.}} = \frac{(33 - 31,9)^2}{31,9} + \frac{(81 - 82,1)^2}{82,1} + \frac{(0 - 1,1)^2}{1,1} + \frac{(4 - 2,29)^2}{2,29} = 2,5$$

It is considered (r-1)(k-1) degrees of freedom, as well as a 95% probability of guaranteeing the result. 2 theoretically for (2-1)(2-1)=1 is 3.84 (according to table „Chi-Square Probabilities”)

$\chi^2_{\text{Calc.}} < \chi^2_{\text{Teoretic}} \rightarrow 2,5 < 3,84 \rightarrow$  null hypothesis is accepted so sex does not influence the consumption of bread of consumers.

Null hypothesis 2: The environment of provenance does not influence the bread consumption of Romanians (table 5)

**Table 5.** Distribution by background

Category \ Environment	Urban	Rural	Total
Consume	54 (54,1)	62 (61,9)	116
It does not consume	2 (1,9)	2 (2,1)	4
Total	56	64	120

*Source:* drafted by the authors

$$A_{11} = \frac{116 \times 56}{120} = 54,1$$

$$A_{12} = \frac{116 \times 64}{120} = 61,9$$

$$A_{21} = \frac{4 \times 56}{120} = 1,9 \quad A_{22} = \frac{4 \times 64}{120} = 2,13$$

$$\chi^2_{\text{Cal.}} = \frac{(54 - 54,1)^2}{54,1} + \frac{(62 - 61,9)^2}{61,9} + \frac{(2 - 1,9)^2}{1,9} + \frac{(2 - 2,1)^2}{2,1} = 0,01$$

It is considered (r-1)(k-1) degrees of freedom, as well as a 95% probability of guaranteeing the result. 2 theoretically for (2-1)(2-1)=1 is 3.84 (according to table „Chi-Square Probabilities”).

$\chi^2_{\text{Calc.}} < \chi^2_{\text{Theoretic}} \rightarrow 0,01 < 3,68 \rightarrow$  null hypothesis is accepted so the environment of provenance does not influence consumption.

Null hypothesis 3: Income does not influence the bread consumption of Romanians

**Table 6.** Distribution by respondents' income

Income Category	0-1000 lei	1001-2000 lei	2001-3000 lei	3001-4000 lei	>4000 lei	Total
Consume	29 (30)	22 (22,2)	26 (25,1)	17 (17,4)	22 (21,3)	116
It does not consume	2 (1,03)	1 (0,8)	0 (0,9)	1 (0,6)	0 (0,7)	4
Total	31	23	26	18	22	120

Source: drafted by the authors

It is considered (r-1)(k-1) degrees of freedom, as well as a 95% probability of guaranteeing the result.  $\chi^2$  theoretically for (2-1)(5-1)=4 is 9.48 (table „Chi-Square Probabilities”) (table 6).

$$A_{11} = \frac{116 \times 31}{120} = 30$$

$$A_{12} = \frac{116 \times 23}{120} = 22,2$$

$$A_{13} = \frac{116 \times 26}{120} = 25,1$$

$$A_{14} = \frac{116 \times 18}{120} = 17,4$$

$$A_{15} = \frac{116 \times 22}{120} = 21,3$$

$$A_{21} = \frac{4 \times 31}{120} = 1,03$$

$$A_{22} = \frac{4 \times 23}{120} = 0,8$$

$$A_{23} = \frac{4 \times 26}{120} = 0,9$$

$$\chi^2_{\text{Cal.}} = \frac{(29 - 30)^2}{30} + \frac{(22 - 22,2)^2}{22,2} + \frac{(26 - 25,1)^2}{25,1} + \frac{(17 - 17,4)^2}{17,4} + \frac{(22 - 21,3)^2}{21,3} + \frac{(2 - 1,03)^2}{1,03} + \frac{(1 - 0,8)^2}{0,8} + \frac{(0 - 0,9)^2}{0,9} + \frac{(1 - 0,6)^2}{0,6} + \frac{(0 - 0,7)^2}{0,7} = 2,9$$

$$\chi^2_{\text{Calc.}} < \chi^2_{\text{Theoretic}} \rightarrow 2,9 < 9,48 \rightarrow$$

null hypothesis

is accepted so income does not influence consumption.

Null hypothesis 4: Age does not influence the bread consumption of Romanians.

**Table 7.** Distribution by age group

Age Category	<20 age	21-30 age	31-40 age	41-50 age	51-60 age	>60 age	Total
<b>Consume</b>	13(14,5)	58 (56,1)	28 (28)	14(14,5)	2 (1,9)	1 (1)	116
<b>It does not consume</b>	2 (0,5)	0 (1,9)	1 (1)	1 (0,5)	0 (0,1)	0 (0,03)	4

*Source:* drafted by the authors

$$A_{11} = \frac{116 \times 15}{120} = 14,5$$

$$A_{15} = \frac{116 \times 2}{120} = 1,9$$

$$A_{23} = \frac{4 \times 29}{120} = 1$$

$$A_{12} = \frac{116 \times 58}{120} = 56,1$$

$$A_{16} = \frac{116 \times 1}{120} = 1$$

$$A_{24} = \frac{4 \times 15}{120} = 0,5$$

$$A_{13} = \frac{116 \times 29}{120} = 28$$

$$A_{21} = \frac{4 \times 15}{120} = 0,5$$

$$A_{25} = \frac{4 \times 2}{120} = 0,1$$

$$A_{14} = \frac{116 \times 15}{120} = 14,5$$

$$A_{22} = \frac{4 \times 58}{120} = 1,9$$

$$A_{26} = \frac{4 \times 1}{120} = 0,03$$

$$\begin{aligned} \chi^2_{\text{Calc.}} = & \frac{(13 - 14,5)^2}{14,5} + \frac{(58 - 56,1)^2}{56,1} + \frac{(28 - 28)^2}{28} + \frac{(14 - 14,5)^2}{14,5} + \frac{(2 - 1,9)^2}{1,9} + \frac{(1 - 1)^2}{1} \\ & + \frac{(2 - 0,5)^2}{0,5} + \frac{(0 - 1,9)^2}{1,9} + \frac{(1 - 1)^2}{1} + \frac{(1 - 0,5)^2}{0,5} + \frac{(0 - 0,1)^2}{0,1} + \frac{(0 - 0,03)^2}{0,03} \\ & = 15,3 \end{aligned}$$

$\chi^2$  theoretically for  $(2-1)(6-1)=5$  it is 11,07 (according to the table „Chi-Square Probabilities”), therefore  $\chi^2_{\text{Calc.}} > \chi^2_{\text{Theoretic}} \rightarrow 15,3 > 11,07 \rightarrow$  the null hypothesis is rejected, so age influences consumption (table 7).

### Cramer's coefficient V

To find out how much age influences the consumption of bread, I'll use Cramer's association coefficient V. (We chose this coefficient because the table has more than 2 lines or columns).

$$V = \sqrt{\frac{\chi^2_{\text{calculat}}}{n(s-1)}} = \sqrt{\frac{15,3}{120(2-1)}} = 0,36$$

Age influences rather poorly, (but not very poorly), the consumption of bread of respondents.

### Discussions

All assumptions were verified except for the last assumption related to the sex of bread consumers. It seems that female personal are the most in number of bread-consuming, but not the men as expected.

Starting from the purpose of research, identifying the behavior of the Romanian bread consumer, the objectives set were achieved, as follows:

- Identifying the most consumed type of bread. We found that sliced white bread is the most preferred by the Romanian respondents who eat bread. In addition, the analysis of the data revealed how much influence the purchase criteria, such as taste, freshness and price, respondents being asked to attach importance to this topic from „very important” to „totally unimportant” to each criterion.
- Reasons why the respondent consumes/does not consume bread are: because of habit or because the food does not have the same taste without bread, but also because there are respondents for whom the diet is a hindrance to eat bread, who are convinced that the bread is fat and do not want to take this risk, preferring not to consume this food.
- Determining the percentage of respondents who intend to change their consumption habits as a result of the price increases. It was found that 35.7% of respondents could give up the habit of eating bread, due to the exaggerated costs.
- Formed opinion about bread, how satisfied they are with the quality-price ratio. Respondents mainly have a good opinion of bread in terms of quality and taste, but are unhappy with the prices of bread in the present day. However, they are trying not to buy the cheapest bread in the bidders' range.

### **Conclusions**

Following the opinion poll, we discovered what are the reasons why there are non-consumers of bread but also the reasons that would make the current consumers to give up this food. All this information will be taken into account in order to develop ideas for a more effective response to the Romanian bread consumer. From the research carried out, we have observed that diet and health are two factors often mentioned by non-consumers as obstacles that they cannot overcome to eat bread, but even consumers who feed on this food worry about the extra pounds. In short, bread and diet are causes of bread not being eaten. Therefore, I propose for them the following types of healthy and suitable for the diet, already existing on the Romanian market: rye bread, whole wheat bread, linseed bread, gluten-free bread, oat bread.

Many people are not aware, however, that there are already special types of bread on the market that do not gain weight, that are intended for those who follow a diet, and that are much healthier.

### **Conflict of interests**

The authors declare no conflict of interest.



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